

Remarks

Applicant has amended claims 1, 11, 16 and 17. Accordingly, claims 1 to 17 remain pending in this patent application.

Applicant also wishes to take note of the telephone interview with the Examiner that took place on July 11, 2003. During this telephone interview, Applicant discussed the many distinctions that existed between the invention as claimed, i.e., a turbocharger assembly comprising pivoting vanes having a specific airfoil thickness to length ratio, from the wind turbine airfoil disclosed in Selig. As a result of this telephone interview, and as suggested by the Examiner, Applicant has amended independent claims 1 and 11 in the manner disclosed below to include functional language that operates to further clarify and distinguish its invention from Selig.

Applicant now addresses each and every point raised by the Examiner in the above-identified Office action as follows:

I. Objection to the Claims

Claims 16 and 17 have been objected to for minor informalities noted by the Examiner. These claims have been amended in the manner noted by the Examiner. In view thereof, Applicant respectfully requests that the objection of claims 16 and 17 be reconsidered and withdrawn.

II. Rejection of Claims Under Section 103 Based on Swearingen and Selig

Claims 1 to 3, 11 to 13 and 15 have been rejected under 35 U.S.C. §103 as being allegedly unpatentable over Swearingen in view of Selig. As an initial matter, Applicant has amended independent claims 1 and 11 to clarify the functional purpose of the recited vane thickness to length ratio; namely, to provide an improved degree of operational efficiency by giving a higher area turndown for a fixed amount of vane rotation.

As recited in the detailed disclosure of this application (page 13, lines 11 to 26), an important feature of vanes constructed according to this invention is that they have a specified thickness-to-length ratio. This specified ratio operates to provide an improved degree of operational efficiency in the turbocharger assembly when the vanes are pivoted within the turbine housing. Applicant has discovered through much experimentation and development

that vanes having this specific thickness-to-length ratio operate to enhance the blockage effect of the vanes when they are rotated into a closed position.

Vanes configured in this manner in fact provide a higher area turndown for a fixed amount of vane rotation than that afforded by conventionally configured vanes, i.e., vanes not having this specific thickness-to-length ratio. As the vanes of this invention are pivoted into a closed position, the specific thickness-to-length ratio operates to close the throat area of the turbocharger at a rate that is increased when compared to conventionally configured turbocharger vanes.

The Examiner has cited Swearingen for its alleged disclosure of a fluid handling device comprising a plurality of movable blades. However, as admitted by the Examiner, Swearingen does not disclose or suggest Applicant's recited claim feature that the vanes have the specified thickness-to-length ratio.

The Examiner, however, relies on Selig for its disclosure of an airfoil comprising a thickness-to-length ratio allegedly within the range recited in Applicant's claims.

However, as noted during the telephone interview with the Examiner, Selig discloses an airfoil having a structure that is fundamentally different from Applicant's claimed vanes, and that is placed in an application that is fundamentally different from Applicant's claimed turbocharger assembly.

Namely, the airfoil of Selig is a *dynamic* member of the wind turbine that is mounted on a rotor that spins like a propeller in response to being placed into an air flow path.

Thus, the design considerations taken into account in configuring the dynamic airfoil in Selig are those associated with optimizing aerodynamic efficiency in terms of providing a desired rotor spinning movement in response to air flow.

In contrast, Applicant's vanes are substantially *static* and do not spin within the turbocharger assembly. While they are configured to pivot a modest amount (substantially less than 180 degrees), they are not dynamic like the airfoil of Selig because they do not move primarily in response to air flow. Rather, the vanes are controlled to affect airflow. Thus, the design considerations for Applicant's static vanes are not the same as those associated with the dynamic airfoil of Selig. With respect to airflow within the turbocharger assembly, any aerodynamic design considerations given to the vanes would be those involving pressure losses and / or flow restrictions taking place within the air flow path between the vanes to provide a desired air flow characteristic within the turbocharger assembly. Again, these design

considerations are much different from and not the same as those associated with a dynamic rotary turbine airfoil.

The airfoil of Selig is also configured much differently than Applicant's vane in that it has a substantial axial dimension (e.g., 21 meters). Thus, another important design consideration for the airfoil in Selig is one relating to the airfoil structural integrity. In contrast, this design consideration is not paramount in Applicant's vanes, which are subject to substantially smaller rotational stresses.

For all of these reasons, Applicant's submit that one having ordinary skilled in the art of designing vanes for use within a turbocharger assembly would not have been motivated to look to the art of rotary propellers or wind turbines as recited in Selig for design guidance. In view thereof, Applicant submits that Swearingen (which fails to disclose or suggest vane thickness-to-length design) and Selig (which fails to disclose an airfoil element that is functionally and structurally identical or even remotely similar to Applicant's vanes) cannot properly be combined under §103 to render obvious Applicant's claimed invention as recited in independent claims 1 and 11.

In view thereof, Applicant submits that its invention as recited in amended independent claims 1 and 11 is not unpatentable over the combination of Swearingen and Selig, and therefore respectfully requests that the rejection of these independent claims, along with claims 2, 3, 12, 13 and 15 depending therefrom, under 35 U.S.C. §103 be reconsidered and withdrawn.

III. Rejection of Claims Under Section 103 Based on Swearingen, Selig and Design Choice

Claims 4 and 14 have been rejected under 35 U.S.C. §103 as being allegedly unpatentable over Swearingen in view of Selig, and further in view of design choice. These claims depend from claims 1 and 11 respectively. Applicant therefore submits that the combination of Swearingen and Selig fails to render the invention as recited in these claims unpatentable for the same reasons noted in Section II. With regard to the contribution of design choice, the Examiner focuses on the issue of aerodynamic efficiency as taken from Selig in support of this basis for rejection. As noted above in Section II, Applicant's claimed vanes are both structurally and functionally different than the airfoil of Selig. Because Selig discloses an element that is functionally and structurally different from Applicant's claimed

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vane, it would not provide a basis to one having ordinary skill in the art for making a design choice relating to Applicant's vane.

Applicant thus submits that the combination of design choice with Swearingen and Selig does not render the invention as recited in claims 4 and 14 obvious and unpatentable.

Applicant, therefore, respectfully requests that the rejection of claims 4 and 14 under 35 U.S.C. §103 be reconsidered and withdrawn.

IV. Allowed Subject Matter

Claims 5 to 10, and 17 have been identified as being allowed. Applicant acknowledges with appreciation the Examiner's allowance of these claims and hereby accepts the same.

V. Allowable Claim

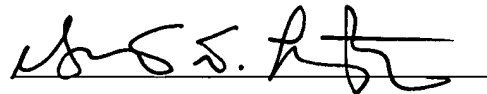
Claim 16 has been identified as being allowable. Applicant appreciates the Examiner's note of allowability, however, believes that this claim is allowable in its current form by virtue of its dependence from amended independent claim 11.

VI. Conclusion

Applicant respectfully requests that the objection to the claims, and the rejections of the claims under 35 U.S.C. §103 be reconsidered and withdrawn, and that claims 1 to 17 pending in this patent application be passed to allowance.

If any additional fees are required, please charge Deposit Account No. 10-0440.

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